

144 MHz FM HAND HELD TRANSCEIVER

# DJ-120T/E

## Service Manual

### Index

•SPECIFICATIONS .....	2
•PARTS LIST .....	3~5
•DISASSEMBLY INSTRUCTIONS .....	6
•CABINET PARTS LOCATION .....	7
•ADJUSTMENT .....	8
•BLOCK DIAGRAM .....	9
•SCHEMATIC DIAGRAM OF MAIN UNIT ....	10
•MAIN PC BOARDS .....	11
•SCHEMATIC DIAGRAM OF CPU UNIT .....	12
•SW PC BOARDS .....	12
•CPU PC BOARDS .....	13
•SCHEMATIC DIAGRAM OF RF UNIT .....	14
•RF PC BOARDS .....	15
•TONE SW PC BOARDS .....	15
•SCHEMATIC DIAGRAM OF AF UNIT .....	16
•AF PC BOARDS .....	17
•SCHEMATIC DIAGRAM OF VCO UNIT .....	18
•VCO PC BOARDS .....	18
•SCHEMATIC DIAGRAM OF DTMF UNIT ....	19

# ■ SPECIFICATIONS

## <GENERAL>

Frequency coverage	144.0–147.995 MHz (DJ-120T) 144.0–145.995 MHz (DJ-120E)
Frequency step	5 kHz (800 channels) (DJ-120T) 12.5 kHz (160 channels) (DJ-120E)
Emission type	16F3 (FM)
Antenna Impedance	50 ohms, unbalanced
Operating voltage	5.5 to 12 vdc
Operating Current (typical at 7.2 vdc)	Battery save 15 mA Squelched 42 mA Max. audio out 98 mA Transmit HI 750 mA Transmit LO 350 mA
Battery charging time	14–16 hours
Dimensions	6 <sup>5</sup> / <sub>8</sub> " (H) × 2 <sup>3</sup> / <sub>8</sub> " (W) × 1 <sup>3</sup> / <sub>16</sub> " (D)
Weight:	0.55 lbs.

## <RECEIVER>

Type	Dual conversion; 1st IF 21.6 MHz; 2nd IF 455 kHz
Sensitivity:	Less than .25 $\mu$ V @12 dB SINAD
Spurious response Rejection ratio	More than 60 dB
Selectivity:	More than $\pm$ 7.5 kHz at –6 dB Less than $\pm$ 15 kHz at –60 dB
Squelch sensitivity:	Less than –12 dB
Audio output	More than 200 mW (10% THD), 8 ohms

## <TRANSMITTER>

Output power	See table
Modulation	Variable reactance FM
Maximum deviation	$\pm$ 5 kHz
Harmonic suppression:	–60 dB
Microphone:	Built-in electret condenser
Operating modes:	Simplex Shifted + or –600 kHz from receive frequency

**RF POWER OUTPUT TABLE**

Battery	HI	LO
EBP-6NAZ	4.5 W	600 mW
EBP-7NAZ	2.5 W	450 mW
EBP-8NAZ	6.5 W	850 mW
EBP-9NA	2.5 W	450 mW

Specifications subject to change without notice.

# PARTS LIST

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
<b>SW Unit</b>								
D1	EL0003	LCD, EL0003	R122	RK3054	Chip R., MCR03 22 kΩ	C225	CU3054	Chip C., CM105W5R223K25VAT
SW1	XD0071	Diode, FMP1	R123	RK3066	Chip R., MCR03 220 kΩ	C226	CS0049	Chip Tantal, TMC 1C105 TR
SW6	UU0007	Tact SW, EVQ-QEC 04K	R124	RK3056	Chip R., MCR03 33 kΩ	C228	CU3019	Chip C., CM105CH470K50VAT
RV1	UQ0011	Push SW, ESB-64801	R125	RK3034	Chip R., MCR03 470Ω	C230	CU8003	Chip C., C2012Y5V1E104ZT
	RV0011A	VR, V108-1 (PVB) S (SJ)	R126	RK3001	Chip R., MCR03 0Ω	C231	CS0052	Chip Tantal, TMC 1A336 TR
	UP0179	13-1FF15A10K	R127	RK3052	Chip R., MCR03 15 kΩ	C232	CU3031	Chip C., CM105W5R471K50VAT
		SUB SW P.C.B.	R128	RK3050	Chip R., MCR03 10 kΩ	C233	CS0051	Chip Tantal, TMC 1C106 TR
<b>CPU Unit</b>			R129	RK3050	Chip R., MCR03 10 kΩ	C234	CU3035	Chip C., CM105W5R102K50VAT
IC101	XA0100	IC, μPD7502G	R130	RK3050	Chip R., MCR03 10 kΩ	C235	CU3024	Chip C., CM105CH121K50VAT
IC102	XA0059	IC, BA6993	R131	RK3014	Chip R., MCR03 10Ω	C236	CU3039	Chip C., CM105W5R222K50VAT
Q101	XE0004	F.E.T., 2SK209GR	R132	RK3030	Chip R., MCR03 220Ω	C238	CS0049	Chip Tantal, TMC 1C105 TR
D101	XD0071	Diode, FMP1	R133	RK3051	Chip R., MCR03 12 kΩ	C239	CU3031	Chip C., CM105W5R471K50VAT
D102	XD0071	Diode, FMP1	R134	RK3062	Chip R., MCR03 100 kΩ	C241	CU3031	Chip C., CM105W5R471K50VAT
D103	XD0071	Diode, FMP1	R135	RK3062	Chip R., MCR03 100 kΩ	C242	CU3052	Chip C., CM105W5R109K25VAT
D104	XD0040	Diode, DAN 202K	R136	RK3062	Chip R., MCR03 100 kΩ			
D105	XD0109	Zener, RLZJ 5.1BJB	R137	RK3031	Chip R., MCR03 270Ω	R201	RK3050	Chip R., MCR03 10 kΩ
D106	XD0080	Diode, RB400D	R138	RK3031	Chip R., MCR03 270Ω	R202	RK3042	Chip R., MCR03 2.2 kΩ
D107	XD0080	Diode, RB400D	R139	RK3052	Chip R., MCR03 15 kΩ	R203	RK3050	Chip R., MCR03 10 kΩ
D2	XL0016	LED SLM-13MW (T only)	R140	RK3001	Chip R., MCR03 0Ω (E only)	R204	RK3050	Chip R., MCR03 10 kΩ
D3	XL0016	LED SLM-13MW (T only)	R146	RK3001	Chip R., MCR03 0Ω	R205	RK3050	Chip R., MCR03 10 kΩ
SW101	UU0007	Tact SW, EVQ-QEC 04K	R161	RK3001	Chip R., MCR03 0Ω (T only)	R206	RK3050	Chip R., MCR03 10 kΩ
SW102	US0012	Slide SW, SSSS 21382A	R162	RK3001	Chip R., MCR03 0Ω (T only)	R207	RK3038	Chip R., MCR03 1 kΩ
SW103	UU0007	Tact SW, EVQ-QEC 04K	<b>AF Unit</b>			R208	RK3050	Chip R., MCR03 10 kΩ
SW104	UU0005	Tact SW, EVQJR02K	IC201	XA0061	IC, NJM386M	R209	RK3034	Chip R., MCR03 470Ω
SW105	UU0008	Tact SW, SKHMPD1	IC202	XA0068	IC, M5218FP-T01-1	R210	RK3042	Chip R., MCR03 2.2 kΩ
	UP0191	CPU P.C.B.	Q201	XT0038	Transistor, 2SA1037KR	R211	RK0105	Chip R., MCR10 2.2Ω
MC101	EY0003	Mic, EM-6B	Q202	XT0037	Transistor, 2SC2412KR	R212	RK3038	Chip R., MCR03 1 kΩ
SP101	ES0005	SP, 036S13D	Q203	XT0061	Transistor, 2SB1132Q T100	R213	RK3044	Chip R., MCR03 3.3 kΩ
BT101	ED0002	Li Batt, BR1225-1VF	Q204	XT0037	Transistor, 2SC2412KR	R214	RK3050	Chip R., MCR03 10 kΩ
C101	CU3035	Chip C., CM105W5R102K50VAT	Q205	XT0057	Transistor, 2SB1184F5Q T200	R215	RK3050	Chip R., MCR03 10 kΩ
C102	CU3017	Chip C., CM105CH330K50VAT	Q206	XT0037	Transistor, 2SC2412KR	R216	RK3046	Chip R., MCR03 4.7 kΩ
C103	CU3035	Chip C., CM105W5R102K50VAT	Q207	XT0037	Transistor, 2SC2412KR	R217	RK3050	Chip R., MCR03 10 kΩ
C104	CU3035	Chip C., CM105W5R102K50VAT	Q208	XE0004	F.E.T., 2SK209GR	R218	RK3050	Chip R., MCR03 10 kΩ
C105	CU3035	Chip C., CM105W5R102K50VAT	Q209	XT0038	Transistor, 2SA1037KR	R219	RK3046	Chip R., MCR03 4.7 kΩ
C106	CU3052	Chip C., CM105W5R103K25VAT	Q210	XT0037	Transistor, 2SC2412KR	R220	RK3042	Chip R., MCR03 2.2 kΩ
C107	CU3035	Chip C., CM105W5R102K50VAT	Q211	XT0038	Transistor, 2SA1037KR	R221	RK3050	Chip R., MCR03 10 kΩ
C108	CS0051	Chip Tantal, TMC 1C106 TR	Q212	XT0037	Transistor, 2SC2412KR	R222	RK3050	Chip R., MCR03 10 kΩ
C109	CU3052	Chip C., CM105W5R103K25VAT	Q213	XT0061	Transistor, 2SB1132Q T100	R223	RK3044	Chip R., MCR03 3.3 kΩ
C110	CU3052	Chip C., CM105W5R103K25VAT	Q214	XT0058	Transistor, 2SD1760F5Q T200	R224	RK3050	Chip R., MCR03 10 kΩ
C111	CU3052	Chip C., CM105W5R103K25VAT	D201	XD0117	Zener, 05AZ5.6X	R225	RK0105	Chip R., MCR10 2.2Ω
C112	CU3052	Chip C., CM105W5R103K25VAT	D202	XD0079	Zener, RLZ6.8A TE11	R226	RK3038	Chip R., MCR03 1 kΩ
C113	CU3052	Chip C., CM105W5R103K25VAT	TH201	XS0001	Thermistor, TD5-C225D	R227	RK3046	Chip R., MCR03 4.7 kΩ
C114	CS0053	Chip Tantal, TMC 0J476 TR	CN201	UE0032	Connector, 10FM-1.0ST	R228	RK0105	Chip R., MCR10 2.2Ω
C115	CU3035	Chip C., CM105W5R102K50VAT	CN202	UE0032	Connector, 10FM-1.0ST	R229	RK3051	Chip R., MCR03 12 kΩ
C116	CU3035	Chip C., CM105W5R102K50VAT	CN203	UE0126	Connector, 10FM-1.0SG-1	R230	RK3058	Chip R., MCR03 47 kΩ
C161	CU3035	Chip C., CM105W5R102K50VAT	CN204	UE0126	Connector, 10FM-1.0SG-1	R231	RK3062	Chip R., MCR03 100 kΩ
C162	CU3035	Chip C., CM105W5R102K50VAT	C201	CS0051	Chip Tantal, TMC 1C106 TR	R232	RK3050	Chip R., MCR03 10 kΩ
C163	CU3035	Chip C., CM105W5R102K50VAT	C202	CU3031	Chip C., CM105W5R471K50VAT	R233	RK3020	Chip R., MCR03 33Ω
R101	RK3050	Chip R., MCR03 10 kΩ	C203	CU3031	Chip C., CM105W5R471K50VAT	R236	RK3057	Chip R., MCR03 39 kΩ
R102	RK3058	Chip R., MCR03 47 kΩ	C204	CU3031	Chip C., CM105W5R471K50VAT	R237	RK3074	Chip R., MCR03 1 MΩ
R103	RK3101	Chip R., MCR03 160 kΩ	C205	CU3031	Chip C., CM105W5R471K50VAT	R238	RK3062	Chip R., MCR03 100 kΩ
R104	RK3058	Chip R., MCR03 47 kΩ	C206	CU3031	Chip C., CM105W5R471K50VAT	R239	RK3062	Chip R., MCR03 100 kΩ
R105	RK3058	Chip R., MCR03 47 kΩ	C207	CU3031	Chip C., CM105W5R471K50VAT	R240	RK3050	Chip R., MCR03 10 kΩ
R106	RK3058	Chip R., MCR03 47 kΩ	C208	CU8003	Chip C., C2012Y5V1E104ZT	R241	RK3062	Chip R., MCR03 100 kΩ
R107	RK3058	Chip R., MCR03 47 kΩ	C209	CU3031	Chip C., CM105W5R471K50VAT	R242	RK3052	Chip R., MCR03 15 kΩ
R108	RK3050	Chip R., MCR03 10 kΩ	C210	CU3031	Chip C., CM105W5R471K50VAT	R243	RK3056	Chip R., MCR03 33 kΩ
R109	RK3050	Chip R., MCR03 10 kΩ	C211	CU3031	Chip C., CM105W5R471K50VAT	R244	RK3061	Chip R., MCR03 82 kΩ
R110	RK3050	Chip R., MCR03 10 kΩ	C212	CU8003	Chip C., C2012Y5V1E104ZT	R245	RK3061	Chip R., MCR03 82 kΩ
R111	RK3058	Chip R., MCR03 47 kΩ	C213	CS0051	Chip Tantal, TMC 1C106 TR	R246	RK3058	Chip R., MCR03 47 Ω
R112	RK3062	Chip R., MCR03 100 kΩ	C214	CU3052	Chip C., CM105W5R103K25VAT	R247	RK0107	Chip R., MCR10 0Ω
R113	RK3066	Chip R., MCR03 220 kΩ	C215	CS0049	Chip Tantal, TMC 1C105 TR	<b>Main Unit</b>		
R114	RK3050	Chip R., MCR03 10 kΩ	C216	CS0053	Chip Tantal, TMC 0J476 TR	IC301	XA0044	IC, M57796MA
R115	RK3050	Chip R., MCR03 10 kΩ	C217	CS0053	Chip Tantal, TMC 0J476 TR	IC302	XA0064	IC, MB1504
R116	RK3050	Chip R., MCR03 10 kΩ	C218	CU8003	Chip C., C2012Y5V1E104ZT	IC303	XA0063	IC, MC3357D
R117	RK3050	Chip R., MCR03 10 kΩ	C219	CS0053	Chip Tantal, TMC 0J476 TR	Q301	XT0036	Transistor, 2SC2413AP
R118	RK3062	Chip R., MCR03 100 kΩ	C220	CS0053	Chip Tantal, TMC 0J476 TR	Q302	XT0037	Transistor, 2SC2412KR
R119	RK3046	Chip R., MCR03 4.7 kΩ	C221	CU3052	Chip C., CM105W5R103K25VAT	Q303	XT0037	Transistor, 2SC2412KR
R120	RK3074	Chip R., MCR03 1 MΩ	C222	CU8003	Chip C., C2012Y5V1E104ZT	Q304	XT0059	Transistor, 2SC3082KQ T96
R121	RK3058	Chip R., MCR03 47 kΩ	C223	CU8003	Chip C., C2012Y5V1E104ZT	Q305	XT0048	Transistor, 2SC3357
			C224	CU3054	Chip C., CM105W5R223K25VAT	Q306	XT0059	Transistor, 2SC3082KQ T96
						Q307	XT0037	Transistor, 2SC2412KR
						Q308	XT0038	Transistor, 2SA1037KR
						Q309	XT0037	Transistor, 2SC2412KR
						Q310	XT0036	Transistor, 2SC2413AP



Ref. No.	Part Code	Part Name and Number
Q311	XT0038	Transistor, 2SC2413AP
D301	XD0078	Diode, DAN235K T96
D303	XD0038	Diode, 1SS133
D304	XD0080	Diode, RB400D T96
D306	XD0080	Diode, RB400D T96
D307	XD0080	Diode, RB400D T96
D308	XD0080	Diode, RB400D T96
D309	XD0080	Diode, RB400D T96
D310	XD0108	Diode, MA704TX
X301	XQ0022	X'tal, UM-1 12.8 MHz
X302	XQ0023	X'tal, UM-1 22.055 MHz
FL301	XC0004	Ceramic Filter, CFUM455E
CD301	XK0001	Ceramic Discr, CDB455C7
RV301	RH0031	Trimmer R., CVR-42A-103AW1D
RV302	RH0031	Trimmer R., CVR-42A-103AW1D
RV303	RH0031	Trimmer R., CVR-42A-103AW1D
CV301	CT0012	Trimmer C., CTZ-10A
L301	QC0009	Chip Inductor, MLF3216DR10M
L302	QC0009	Chip Inductor, MLF3216DR10M
L303	QK0033	Coil, 7T 1.5Ø
B301	QB0003	Ferrite B., OP-2.52-1.2H
B302	QB0003	Ferrite B., OP-2.52-1.2H
S301	US0013	Slide Switch, ESD1111213
CN301	UE0031	Connector, 10FM-1.0BT
CN302	UE0031	Connector, 10FM-1.0BT
CN303	UE0030	Connector, TZL-P05P-A1
CN304	UE0031	Connector, 10FM-1.0BT
	UP0104A	Main P.C.B.
C301	CU3052	Chip C., CM105W5R103K25VAT
C302	CU3052	Chip C., CM105W5R103K25VAT
C303	CU3031	Chip C., CM105W5R471K50VAT
C304	CU3031	Chip C., CM105W5R471K50VAT
C305	CU3017	Chip C., CM105CH330K50VAT
C306	CU8003	Chip C., C2012Y5V1E104ZT
C307	CU3031	Chip C., CM105W5R471K50VAT
C309	CU3031	Chip C., CM105W5R471K50VAT
C310	CU3019	Chip C., CM105CH470K50VAT
C311	CS0049	Chip Tantal, TMC 1C105 TR
C312	CU3031	Chip C., CM105W5R471K50VAT
C313	CU3031	Chip C., CM105W5R471K50VAT
C314	CS0049	Chip Tantal, TMC 1C105 TR
C315	CU3013	Chip C., CM105CH150K50VAT
C316	CU3010	Chip C., CM105CH090C50VAT
C317	CU3017	Chip C., CM105CH330K50VAT
C318	CU3023	Chip C., CM105CH101K50VAT
C319	CU3031	Chip C., CM105W5R471K50VAT
C320	CU8003	Chip C., C2012Y5V1E104ZT
C321	CU3014	Chip C., CM105CH180K50VAT
C322	CU3018	Chip C., CM105CH390K50VAT
C323	CU3023	Chip C., CM105CH101K50VAT
C324	CU3023	Chip C., CM105CH101K50VAT
C326	CU3031	Chip C., CM105W5R471K50VAT
C327	CS0049	Chip Tantal, TMC 1C105 TR
C328	CU3052	Chip C., CM105W5R103K25VAT
C329	CU9009	Chip C., C3216 1H0.01UB
C330	CU3011	Chip C., CM105CH100K50VAT
C331	CU3035	Chip C., CM105W5R102K50VAT
C332	CU3035	Chip C., CM105W5R102K50VAT
C333	CS3035	Chip C., CM105W5R102K50VAT
C334	CU3035	Chip C., CM105W5R102K50VAT
C335	CU8003	Chip C., C2012Y5V1E104ZT
C336	CU3052	Chip C., CM105W5R103K25VAT
C337	CU8003	Chip C., C2012Y5V1E104ZT
C338	CU3052	Chip C., CM105W5R103K25VAT
C339	CU3052	Chip C., CM105W5R103K25VAT

Ref. No.	Part Code	Part Name and Number
C340	CS0023	Chip Tantal, TMC 0J106 TR
C341	CU3031	Chip C., CM105W5R471K50VAT
C342	CU3023	Chip C., CM105CH101K50VAT
C343	CU3024	Chip C., CM105CH121K50VAT
C344	CU8003	Chip C., C2012Y5V1E104ZT
C345	CU8003	Chip C., C2012Y5V1E104ZT
C346	CU8003	Chip C., C2012Y5V1E104ZT
C347	CS0023	Chip Tantal, TMC 0J106 TR
C348	CU3020	Chip C., CM105CH560K50VAT
C349	CU3020	Chip C., CM105CH560K50VAT
C350	CU3031	Chip C., CM105W5R471K50VAT
C351	CU3013	Chip C., CM105CH150K50VAT
C352	CS0050	Chip Tantal, TMC 1A475 TR
C353	CU3017	Chip C., CM105CH330K50VAT
C355	CU8005	Ceramic C., SA055C 222K Chip C., C2012 B1H 222K
R301	RK3043	Chip R., MCR03 2.7 kΩ
R302	RK3058	Chip R., MCR03 47 kΩ
R303	RK3028	Chip R., MCR03 100Ω
R304	RK3054	Chip R., MCR03 22 kΩ
R305	RK3062	Chip R., MCR03 100 kΩ
R306	RK3058	Chip R., MCR03 47 kΩ
R307	RK3038	Chip R., MCR03 1 kΩ
R308	RK3038	Chip R., MCR03 1 kΩ
R309	RK3038	Chip R., MCR03 1 kΩ
R310	RK3042	Chip R., MCR03 2.2 kΩ
R311	RK3042	Chip R., MCR03 2.2 kΩ
R312	RK3022	Chip R., MCR03 47Ω
R313	RK3022	Chip R., MCR03 47Ω
R314	RK3038	Chip R., MCR03 1 kΩ
R315	RK3032	Chip R., MCR03 330Ω
R316	RK0105	Chip R., MCR10 2.2Ω
R317	RK3027	Chip R., MCR03 120Ω
R318	RK0011	Chip R., MCR10 47Ω
R319	RK3030	Chip R., MCR03 220Ω
R321	RK3050	Chip R., MCR03 10 kΩ
R322	RK3044	Chip R., MCR03 3.3 kΩ
R323	RK3062	Chip R., MCR03 100 kΩ
R324	RK3062	Chip R., MCR03 100 kΩ
R325	RK3038	Chip R., MCR03 1 kΩ
R326	RK3062	Chip R., MCR03 100 kΩ
R327	RK3038	Chip R., MCR03 1 kΩ
R328	RK3038	Chip R., MCR03 1 kΩ
R329	RK3038	Chip R., MCR03 1 kΩ
R330	RK3050	Chip R., MCR03 10 kΩ
R331	RK3050	Chip R., MCR03 10 kΩ
R333	RK3050	Chip R., MCR03 10 kΩ
R334	RK3050	Chip R., MCR03 10 kΩ
R335	RK3038	Chip R., MCR03 1 kΩ
R336	RK3050	Chip R., MCR03 10 kΩ
R337	RK3058	Chip R., MCR03 47 kΩ
R338	RK3058	Chip R., MCR03 47 kΩ
R339	RK3050	Chip R., MCR03 10 kΩ
R340	RK3062	Chip R., MCR03 100 kΩ
R341	RK3050	Chip R., MCR03 10 kΩ
R342	RK3074	Chip R., MCR03 1 MΩ
R343	RK3050	Chip R., MCR03 10 kΩ
R344	RK3038	Chip R., MCR03 1 kΩ
R345	RK3046	Chip R., MCR03 4.7 kΩ
R346	RK3066	Chip R., MCR03 220 kΩ
R347	RK3034	Chip R., MCR03 470Ω
R348	RK3046	Chip R., MCR03 4.7 kΩ
R349	RK3038	Chip R., MCR03 1 kΩ
R350	RK3058	Chip R., MCR03 47 kΩ
R351	RK3040	Chip R., MCR03 1.5 kΩ
R352	RK3040	Chip R., MCR03 1.5 kΩ
R353	RK3058	Chip R., MCR03 47 kΩ
R354	RK3040	Chip R., MCR03 1.5 kΩ
R355	RK3026	Chip R., MCR03 100Ω
R356	RK3066	Chip R., MCR03 220 kΩ
R357	RK3042	Chip R., MCR03 2.2 kΩ
R358	RK3066	Chip R., MCR03 220 kΩ
R359	RK3042	Chip R., MCR03 2.2 kΩ
R360	RK3028	Chip R., MCR03 100Ω

Ref. No.	Part Code	Part Name and Number
R361	RK3054	Chip R., MCR03 22 kΩ
R362	RK3029	Chip R., MCR03 180Ω
R363	RK3022	Chip R., MCR03 47Ω
R364	RK3022	Chip R., MCR03 47Ω
<b>RF Unit</b>		
Q401	XE0009	F.E.T., 2SK302GR
Q402	XE0009	F.E.T., 2SK302GR
Q403	XT0058	Transistor, 2SC3082KQ T96
D401	XD0066	Diode, RLS135
D402	XD0066	Diode, RLS135
D403	XD0066	Diode, RLS135
D404	XD0066	Diode, RLS135
D405	XD0012	Diode, 1SS97
D406	XD0073	Varicap, MA334B
D407	XD0073	Varicap, MA334B
D408	XD0012	Diode, 1SS97
D409	XD0073	Varicap, MA334B
D410	XD0073	Varicap, MA334B
D411	XD0012	Diode, 1SS97
D412	XD0012	Diode, 1SS97
D413	XD0012	Diode, 1SS97
D414	XD0040	DAN, 202K (E only)
IC401	XA0052	IC, S7116A
CN401	UJ0003	SP MIC Connector, HSJ1102-01-520
CN402	UE0032	Connector, 10FM-1.0ST
	UE0029	ANT Connector
SW401	UD0004	DIP, SW SSG M7P (T only)
FL401	XF0001	X Filter, 21.6 MHz
X401	XB0001	Ceramic R., FAR-C40A-03580000-K01
RV401	RH0038	Trimmer R., CVR-42A-473 AW1D
L401	QK0035	Coil, 4T 2Ø
L402	QK0033	Coil, 7T 1.5Ø
L403	QK0034	Coil, 11T 1.5Ø
L404	QK0033	Coil, 7T 1.5Ø
L405	QA0013	Coil
L406	QA0013	Coil
L407	QC0010	Chip Inductor, MLF3216E100M
L408	QA0013	Coil
L409	QA0013	Coil
L410	QC0009	Chip Inductor, MLF3216DR10M
L411	QC0010	Chip Inductor, MLF3216E100M
R401	RK3074	Chip R., MCR03 1 MΩ
R402	RK3074	Chip R., MCR03 1 MΩ
R403	RK3018	Chip R., MCR03 22Ω
R404	RK3018	Chip R., MCR03 22Ω
R405	RK3074	Chip R., MCR03 1 MΩ
R406	RK3074	Chip R., MCR03 1 MΩ
R408	RK3034	Chip R., MCR03 470Ω
R409	RK3022	Chip R., MCR03 47Ω
R410	RK3050	Chip R., MCR03 10 kΩ
R411	RK3034	Chip R., MCR03 470Ω
R412	RK3038	Chip R., MCR03 1 kΩ
R413	RK3062	Chip R., MCR03 100 kΩ
R414	RK3046	Chip R., MCR03 4.7 kΩ
R415	RK3046	Chip R., MCR03 4.7 kΩ
R416	RK3001	Chip R., MCR03 0Ω (E only)
R419	RK3064	Chip R., MCR03 150 kΩ (E only)
R419	RK3001	Chip R., MCR03 0Ω (T only)
R420	RK3058	Chip R., MCR03 47 kΩ
R421	RK3001	Chip R., MCR03 0Ω (E only)
R421	RK3070	Chip R., MCR03 470 kΩ (T only)
R422	RK3034	Chip R., MCR03 470Ω (E only)
R426	RD0115	Jumper, JPW01 FC03 (E only)
R427	RD0115	Jumper, JPW01 FC03 (E only)

Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number	Ref. No.	Part Code	Part Name and Number
R428	RD0115	Jumper, JPW01 FC03 (E only)	R509	RK3062	Chip R., MCR03 100 kΩ			
R429	RD0115	Jumper, JPW01 FC03 (E only)	R510	RK3062	Chip R., MCR03 100 kΩ			
R430	RD0115	Jumper, JPW01 FC03 (E only)	R511	RK3050	Chip R., MCR03 10 kΩ			
C401	CC0117	Ceramic C., CC45CH1H18 pF	R512	RK3050	Chip R., MCR03 10 kΩ			
C402	CU3015	Chip C., CM105CH220K50VAT	R513	RK3050	Chip R., MCR03 10 kΩ			
C403	CU3010	Chip C., CM105CH090C50VAT	R514	RK3054	Chip R., MCR03 22 kΩ			
C404	CU3017	Chip C., CM105CH330K50VAT	R515	RK3032	Chip R., MCR03 330Ω			
C405	CU3013	Chip C., CM105CH150K50VAT	R516	RK3054	Chip R., MCR03 22 kΩ			
C406	CU3015	Chip C., CM105CH220K50VAT	<b>DTMF Unit (DJ-120T only)</b>					
C407	CU3017	Chip C., CM105CH330K50VAT	IC601	XA0042	IC, LR40872			
C408	CU3013	Chip C., CM105CH150K50VAT	Q601	XT0038	Transistor, 2SA 1037KR			
C409	CU3015	Chip C., CM105CH220K50VAT	Q602	XT0037	Transistor, 2SC 2412			
C410	CU3031	Chip C., CM105W5R471K50VAT	Q603	XT0041	Transistor, FMW1			
C411	CU3031	Chip C., CM105W5R471K50VAT						
C412	CU3002	Chip C., CM105CH010C50VAT	X601	XB0001	Ceramic Resonator, FAR-C4CA-03580000-K01			
C413	CU3019	Chip C., CM105CH470K50VAT						
C414	CU3015	Chip C., CM105CH220K50VAT	RV601	RH0080	Trimmer R., MVR32 HXBN 473			
C415	CU3019	Chip C., CM105CH470K50VAT						
C416	CU3003	Chip C., CM105CH020C50VAT	R601	RK3058	Chip R., MCR03 47 kΩ			
C417	CU3052	Chip C., CM105W5R103K25VAT	R602	RK3022	Chip R., MCR03 47Ω			
C418	CU3031	Chip C., CM105W5R471K50VAT	R603	RK3050	Chip R., MCR03 10 kΩ			
C419	CU3002	Chip C., CM105CH010C50VAT	R604	RK3046	Chip R., MCR03 4.7 kΩ			
C420	CU3052	Chip C., CM105W5R103K25VAT	R605	RK3050	Chip R., MCR03 10 kΩ			
C421	CU3006	Chip C., CM105CH050C50VAT	R606	RK3050	Chip R., MCR03 10 kΩ			
C422	CU3031	Chip C., CM105W5R471K50VAT	R607	RK3039	Chip R., MCR03 1.2 kΩ			
C423	CU3031	Chip C., CM105W5R471K50VAT	R608	RK3046	Chip R., MCR03 4.7 kΩ			
C426	CS0050	Chip Tantal, TMC1A475 TR	R609	RK3058	Chip R., MCR03 47 kΩ			
C427	CU0003	Chip C., CC2012 Y1E 0.1 μF	R610	RK3076	Chip R., MCR03 1.5 MΩ			
C428	CU3052	Chip C., CM105W5R103K25VAT (E only)						
C428	CU3039	Chip C., CM105W5R222K50VAT (T only)	C601	CS0057	Chip Tantal, TMC 0J225 TR			
<b>VCO Unit</b>			C602	CU3039	Chip C., CM105W5R222K50VAT			
Q501	XT0059	Transistor, 2SC3082KQ T96	C604	CU3031	Chip C., CM105W5R471K50VAT			
Q502	XT0037	Transistor, 2SC2412KR	C605	CU3035	Chip C., CM105W5R102K50VAT			
Q503	XT0037	Transistor, 2SC2412KR	C606	CU3035	Chip C., CM105W5R102K50VAT			
Q504	XT0059	Transistor, 2SC3082KQ T96	C607	CU3035	Chip C., CM105W5R102K50VAT			
Q505	XT0059	Transistor, 2SC3082KQ T96	C631	CU3035	Chip C., CM105W5R102K50VAT			
D501	XD0077	Varicap, 1SV161TPH2	<b>Mechanical Parts</b>					
D502	XD0077	Varicap, 1SV161TPH2		FG0021	Jack Rubber, Jack Cover			
L501	QC0010	Chip Inductor, MLF3216E100M		DK0076B	Acryl Plate			
L502	QA0013	Coil		DK0104	VOL plate			
L503	QC0010	Chip Inductor, MLF3216E100M		DK0080	Ornament of HI/LOW			
	UP0105A	VCO P.C.B.		DK0082	Ornament of DIP SW (T only)			
C501	CU3031	Chip C., CM105W5R471K50VAT		DK0081	Ornament of DIP SW (E only)			
C502	CS0023	Tantal C., TSD-S 10 μ/6.3 V		KM0083	Front Case (T only)			
C503	CU3031	Chip C., CM105W5R471K50VAT		KM0084	Front Case (E only)			
C504	CS0049	Chip Tantal, TMC 1C105 TR		KB0027	Rear Case			
C505	CU3023	Chip C., CM105CH101K50VAT		KU0065	Upper Panel			
C506	CU3002	Chip C., CM105CH010C50VAT		FG0005	Insulator			
C507	CU3031	Chip C., CM105W5R471K50VAT		SH0045	DUP Fixture			
C508	CU3023	Chip C., CM105CH101K50VAT		NB0017	DUP Knob			
C509	CU3031	Chip C., CM105W5R471K50VAT		NL0003	HI/LOW Knob			
C510	CU3031	Chip C., CM105W5R471K50VAT		NL0004	F. Lock Knob			
C511	CU3003	Chip C., CM105CH020C50VAT		NP0012	SQL OFF Knob			
C512	CU3011	Chip C., CM105CH100K50VAT		NB0016	Tone Knob			
C513	CU3031	Chip C., CM105W5R471K50VAT		NB0018	PTT Knob			
C514	CU3031	Chip C., CM105W5R471K50VAT		NB0019	Release Knob			
C515	CU3017	Chip C., CM105CH330K50VAT		NK0017	Volume Knob			
C516	CS0009	Tantal C., TSD-S 1 μ/25 V		FG0032	DTMF Silicon Rubber (T only)			
C517	CU3018	Chip C., CM105CH390K25VAT						
R501	RK3022	Chip R., MCR03 47Ω						
R502	RK3026	Chip R., MCR03 100Ω						
R503	RK3050	Chip R., MCR03 10 kΩ						
R504	RK3050	Chip R., MCR03 10 kΩ						
R505	RK3038	Chip R., MCR03 1 kΩ						
R506	RK3050	Chip R., MCR03 10 kΩ						
R507	RK3042	Chip R., MCR03 2.2 kΩ						
R508	RK3050	Chip R., MCR03 10 kΩ						

# ■ DISASSEMBLY INSTRUCTIONS

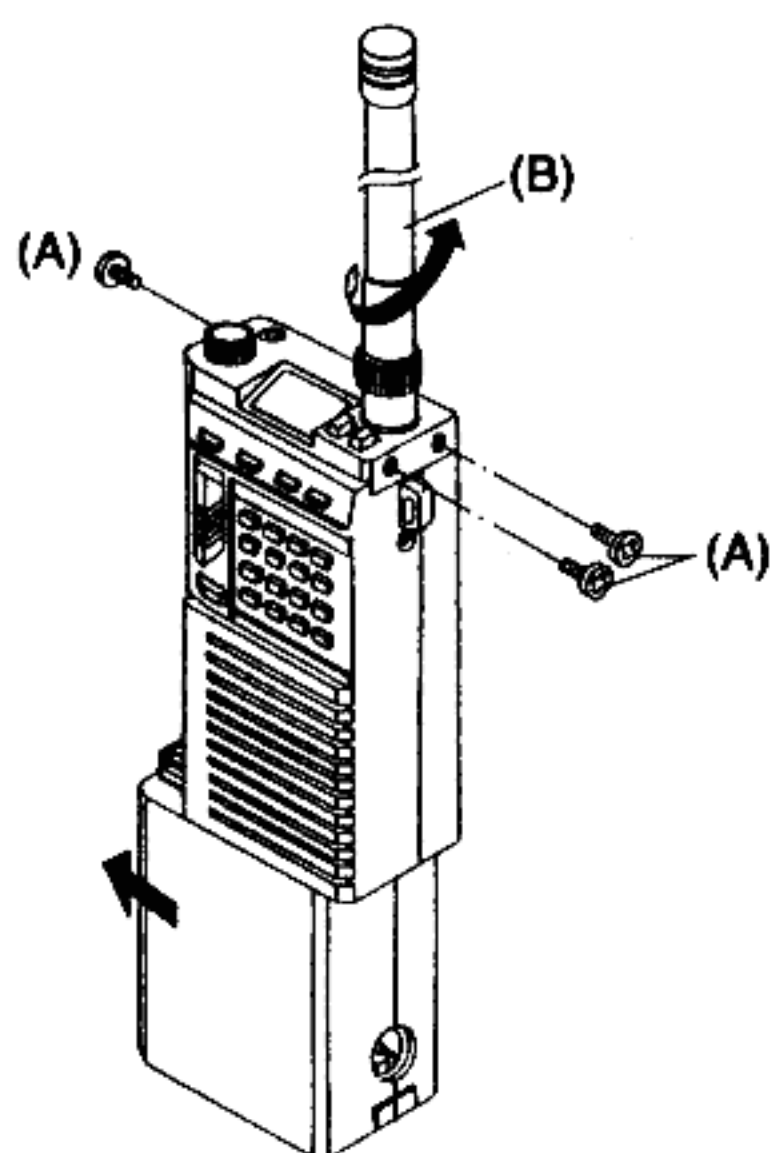


Fig. 1

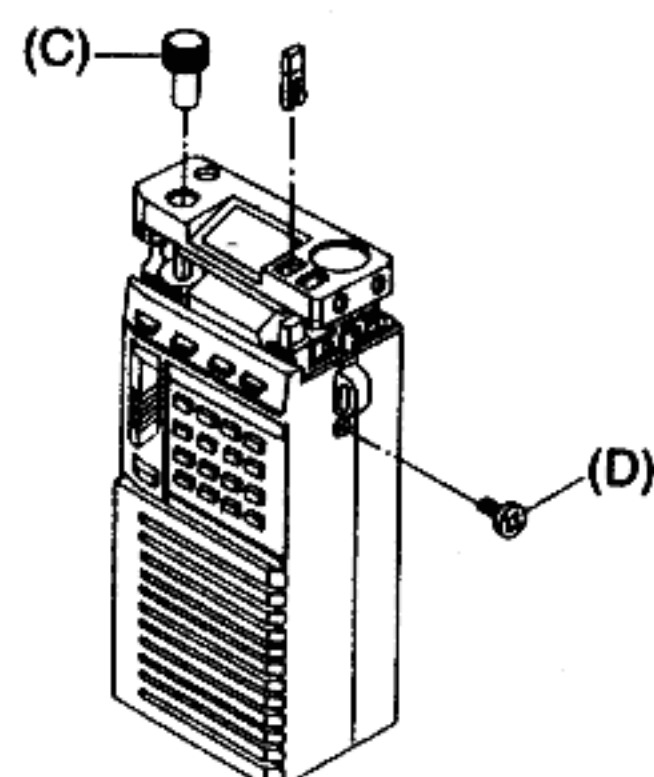


Fig. 2

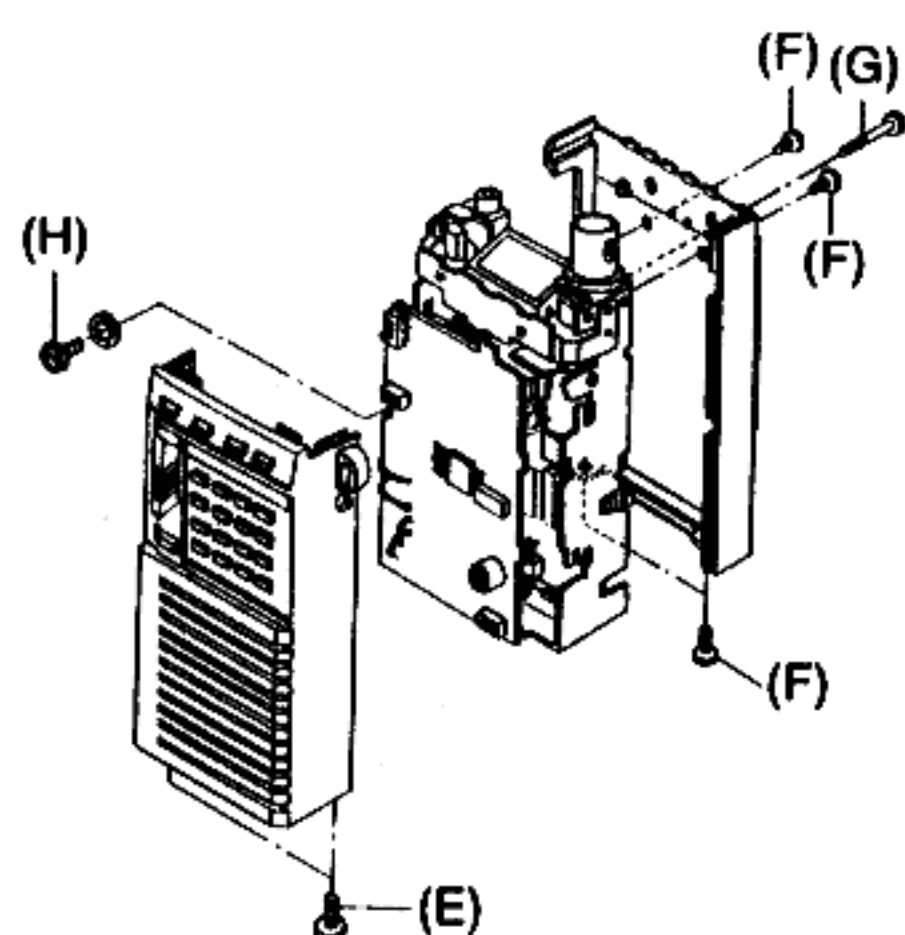


Fig. 3

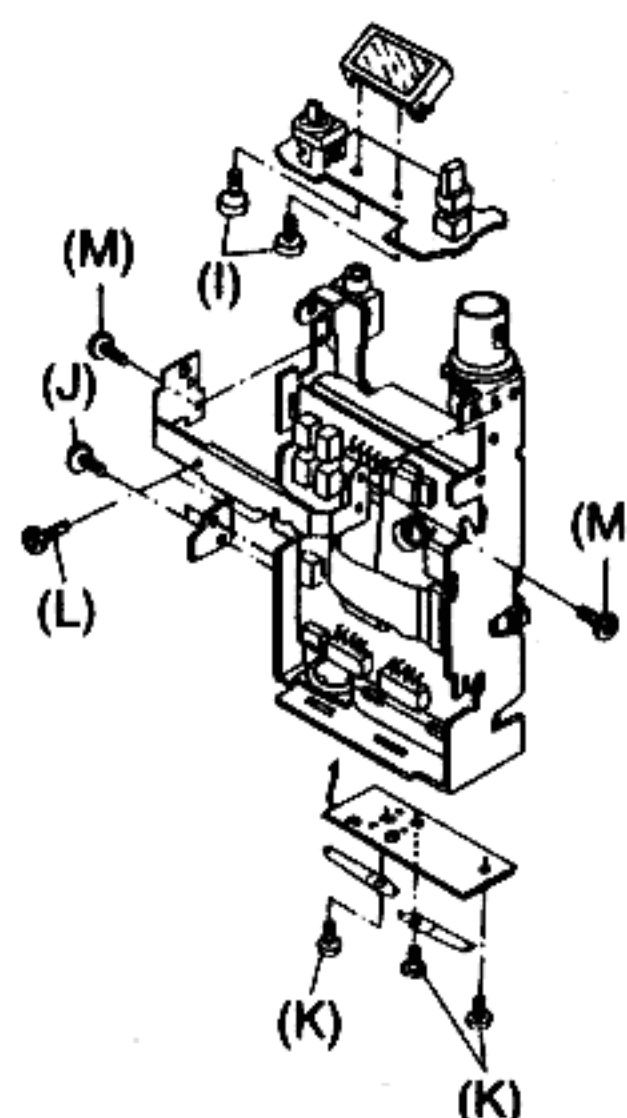
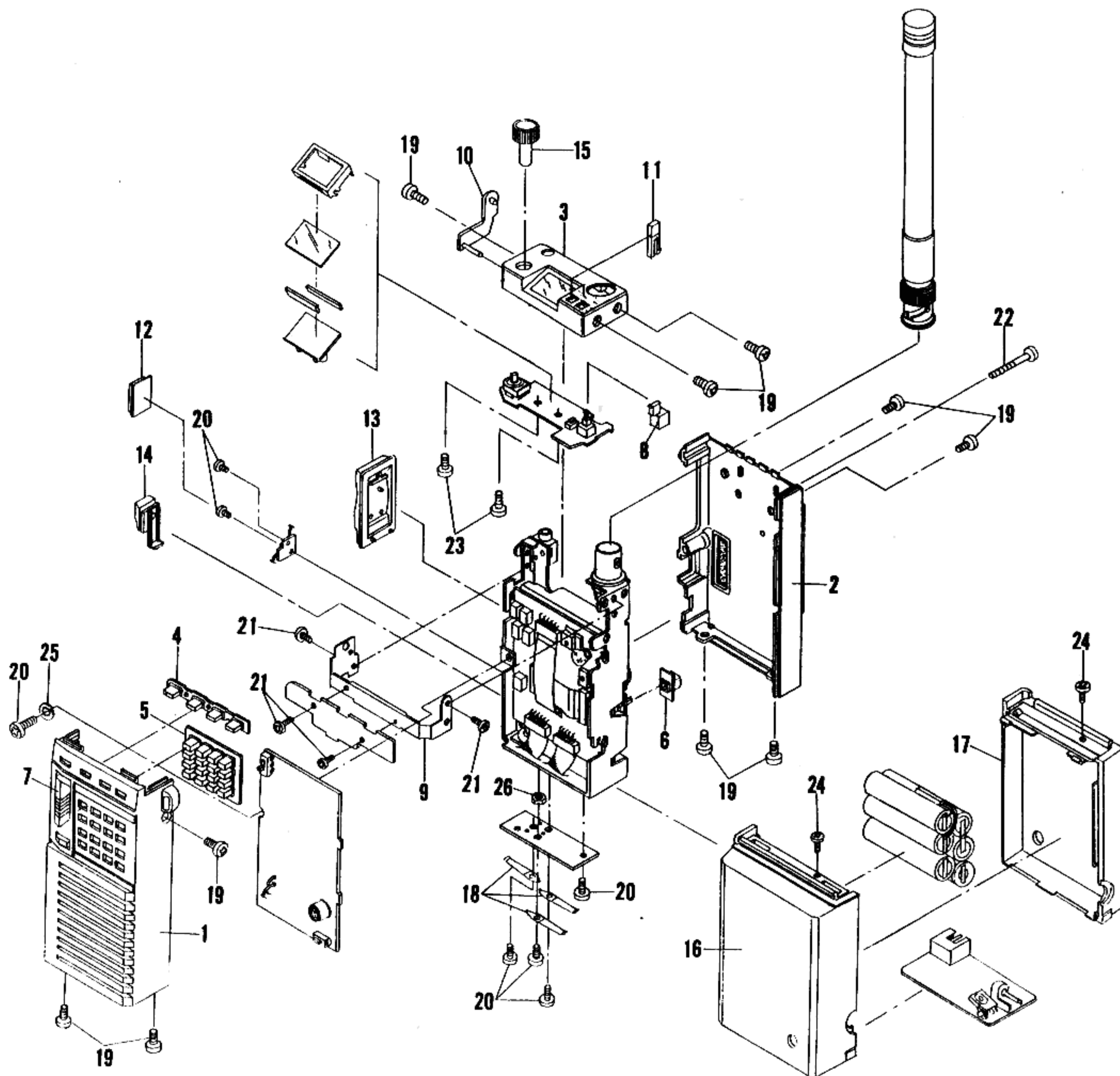


Fig. 4

Shown in Fig.—	To remove—	Remove—
1	Upper Panel	Screw ..... (A)×3
1	Upper Panel	Rubber Flex Antenna ..... (B)×1
2	Upper Panel	Volume Knob ..... (C)×1
2	Front Panel	Screw ..... (D)×1
3	Front Panel	Screw ..... (E)×2
3	Rear Panel	Screw ..... (F)×3
3	Rear Panel	Screw ..... (G)×1
3	CPU Board	Screw (and Washer) ..... (H)×1
4	LCD	Screw ..... (I)×2
4	Lamp (Tone) Board	Screw ..... (J)×2
4	Power Supply Terminal Board	Screw ..... (K)×3
4	Sub SW Board	Screw ..... (L)×2
4	Fixing Plate	Screw ..... (M)×2



# ■ CABINET PARTS LOCATION



Ref. No.	Part Code	Part Name and Number
<b>Mechanical Parts</b>		
1	KM0063	Front Case DJ-120T only
	KM0064	Front Case DJ-120E only
2	KB0027	Rear Case
3	KU0065	Upper Panel
4	FG0054	Key Pad
5	FG0032	Silicon Key (DJ-120T only)
6	NL0003	HI/LOW Knob
7	NL0004	F LOCK Knob
8	NP0012	SQL OFF Knob
9	SH0046	Fixing Plate
10	FG0021	EP Rubber
11	NB0033	CALL Knob
12	NB0016	LIGHT (TONE) Knob
13	NB0018	PTT Knob
14	NB0019	RELEASE Knob
15	NK0017	VOLUME Knob
16	KF0012	Ni-Cd Battery Case Cover
17	KD0018	Ni-Cd Battery Case
18	SP0001	Circuit Contact

Ref. No.	Part Code	Part Name and Number
<b>Screws</b>		
19	AF0007	M2×2.5
20	AF0003	M2×3
21	AF0006	M1.4×2
22	AP0003	M2×5
23	AP0004	M2×5
24	AF0008	M2×3.5
<b>Washer</b>		
25	AZ0015	W2
<b>Nut</b>		
26	AN0004	M2

# ■ ADJUSTMENT

## 1. Transmitting Unit

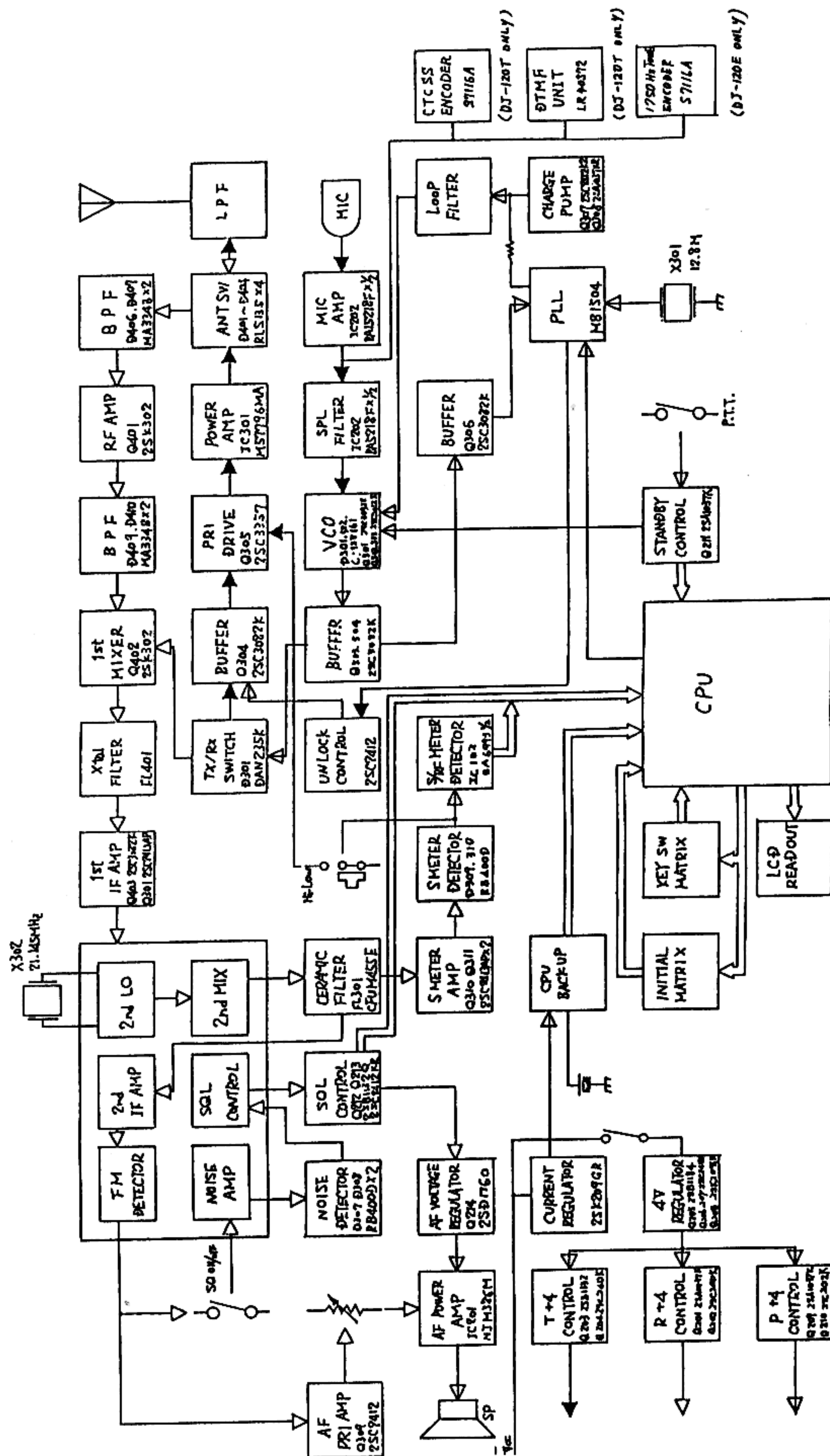
Item	Adjustment Point	Adjustment Method	Spec
1. Frequency adjustment	CV301 (Main PCB)	Set the unit in the transmission mode at 144.03 MHz and adjust CV301. (Transceiver tester, counter)	144.03 MHz ±50 Hz
2. Modulation degree adjustment	VR303 (Main PCB)	Input a signal of 1 kHz/50 mV into the SP/MIC jack and adjust VR303 so that you obtain 4.7 kHz/Dev in the transmission mode.	4.7 kHz ±0.2 kHz
3. Subaudible tone	VR401 (RF Unit)	Set the subaudible tone to 114.8 Hz by DIP Switch and adjust VR401 so that you obtain 800 Hz/Dev.	800 Hz ±50 Hz
4. DTMF	VR601 (DTMF Unit)	Push <b>[1]</b> in the transmission mode and adjust VR601 so that you obtain 3 kHz/Dev.	3 kHz ±500 Hz

## 2. Receiving Unit

Item	Adjustment Point	Adjustment Method	Spec
1. VCO P/D voltage adjustment	L502 (VCO)	Adjust L502 so that P/D voltage is 0.5 V at 144.03 MHz. (DC voltmeter)	0.5 V ± 0.1 V
2. RF Amp	L405, 406, 408 & 409 (RF PCB)	1 kHz, 3.5 kHz/Dev, -6 dbμ (Meter direct-reading), 145.03 MHz, audio output 50 mW/8Ω (Transceiver tester) Adjust L405, 406, 408 & 409 so that SINAD sensitivity becomes maximum.	-6 dbμ Max.
3. Squelch Sensitivity	VR301 (Main PCB)	1 kHz, 3.5 kHz/Dev, -8 dbμ (Meter direct-reading), 145.03 MHz (Transceiver tester) Turn VR301 counterclockwise from closed conditions and set to a point where the squelch is open.	-8 dbμ ±1
4. S-meter adjustment	VR302 (Main PCB)	1 kHz, 3.5 kHz/Dev, +17 dbμ (Meter direct-reading) Turn VR302 so that <b>[FULL]</b> -bar begins to light.	



# ■ BLOCK DIAGRAM



◀ COMMON  
 ◀ RX LINE  
 ▶ TX LINE

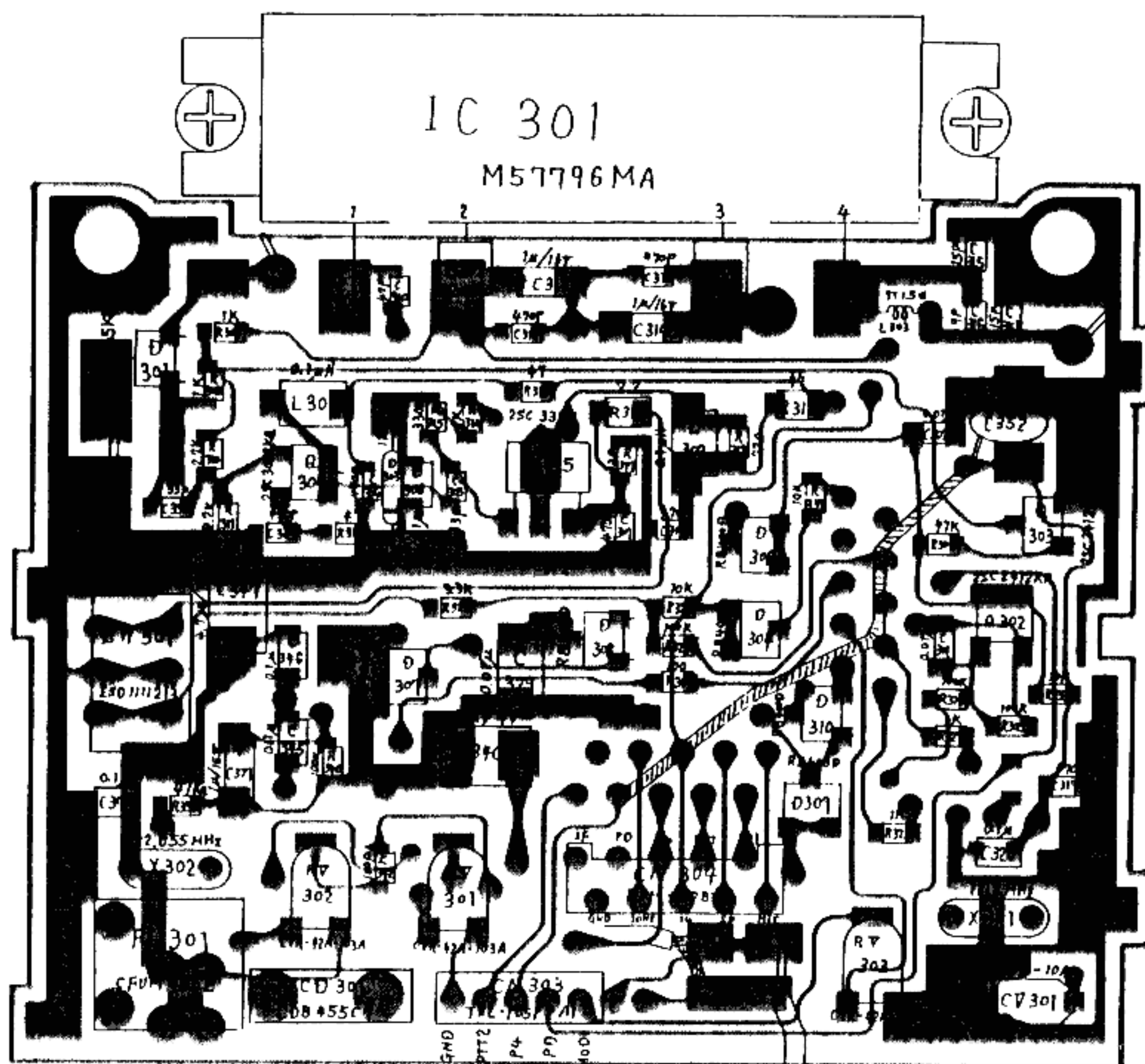
AF UNIT

MAIN UNIT

VCO UNIT

Note: Values in ( ) show the values under transmission condition.

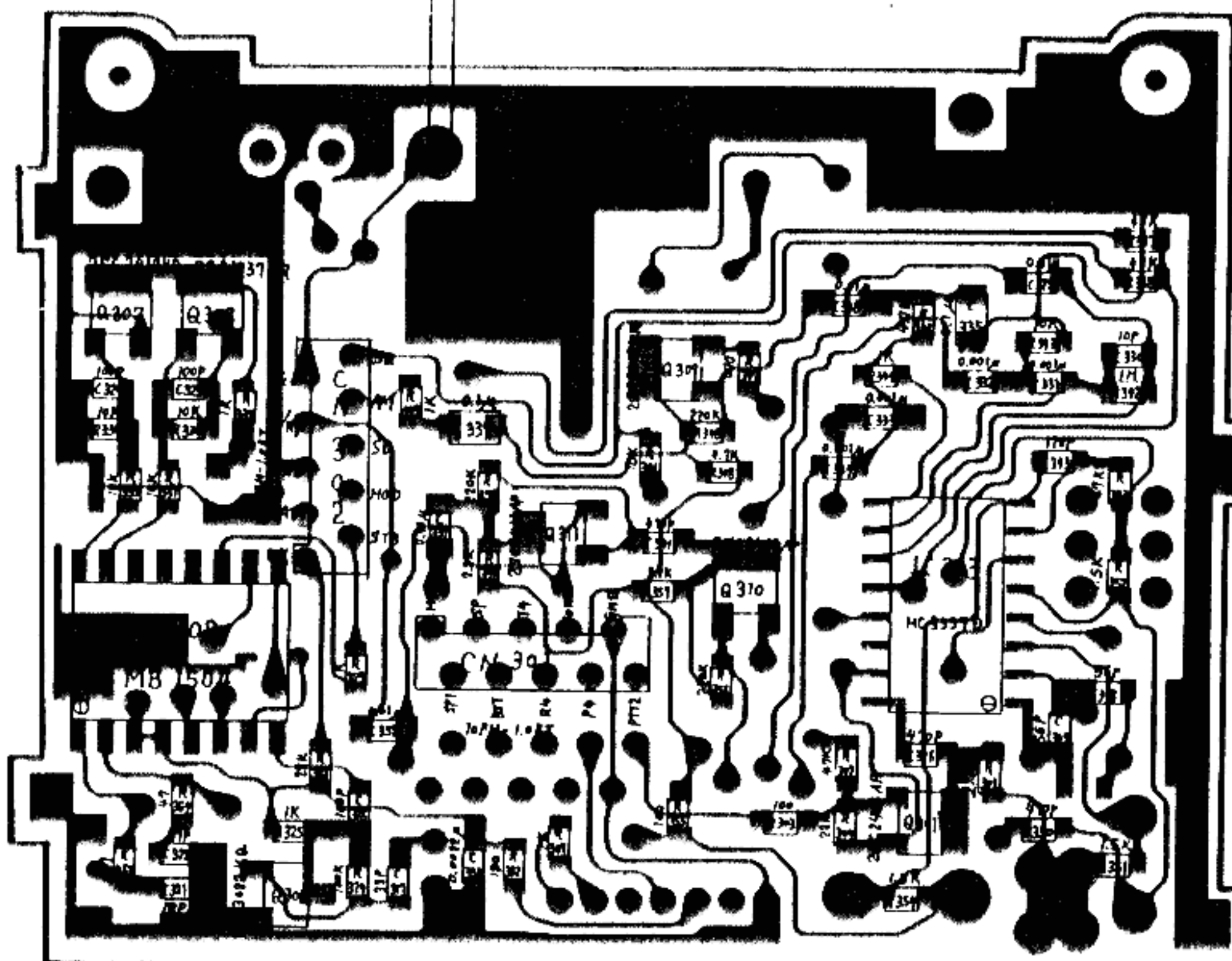
**Note:** Values in ( ) show the values under transmission condition.



VCO P.C.B.

SW P.C.B.

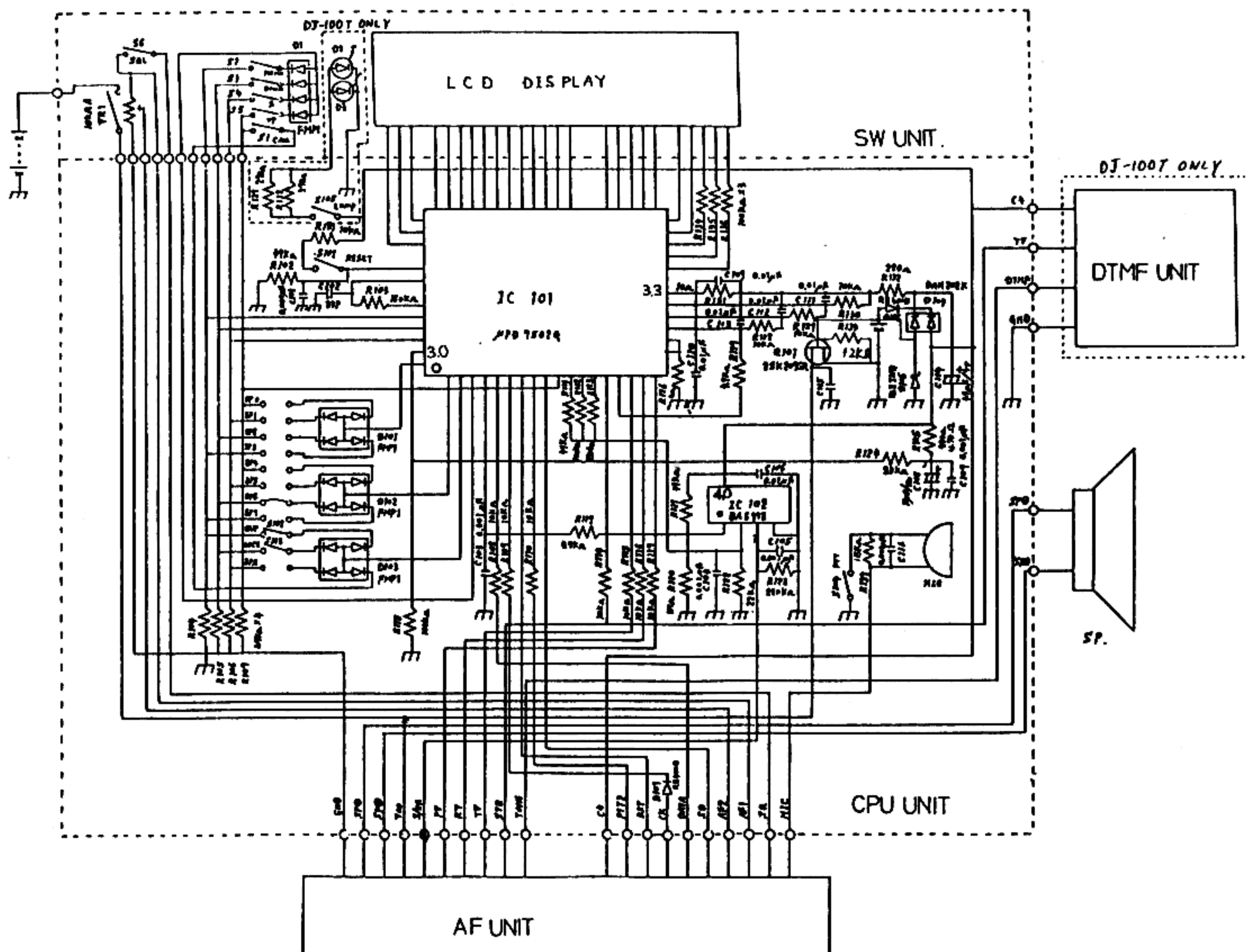
**(Part)**



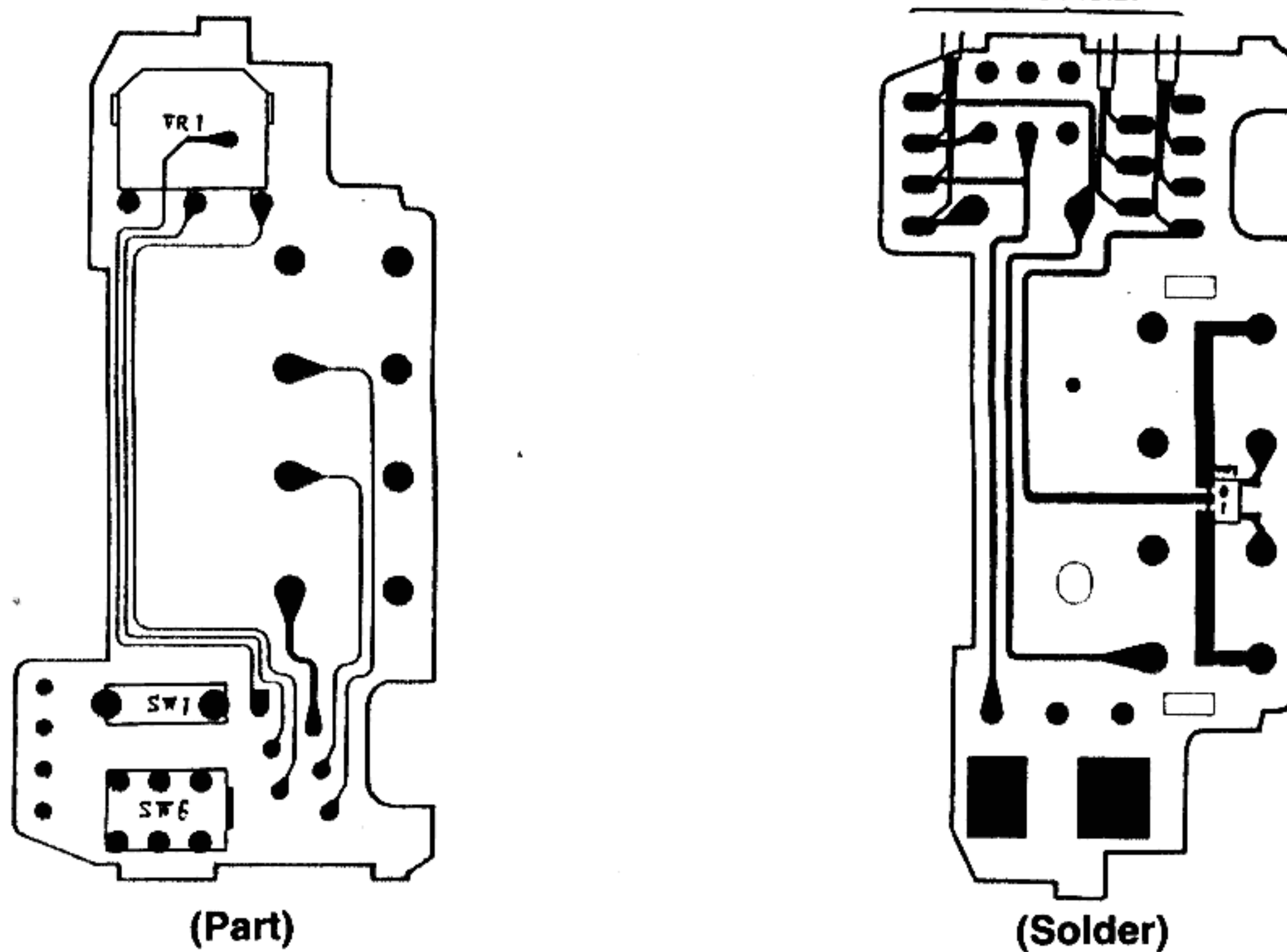
**(Solder)**

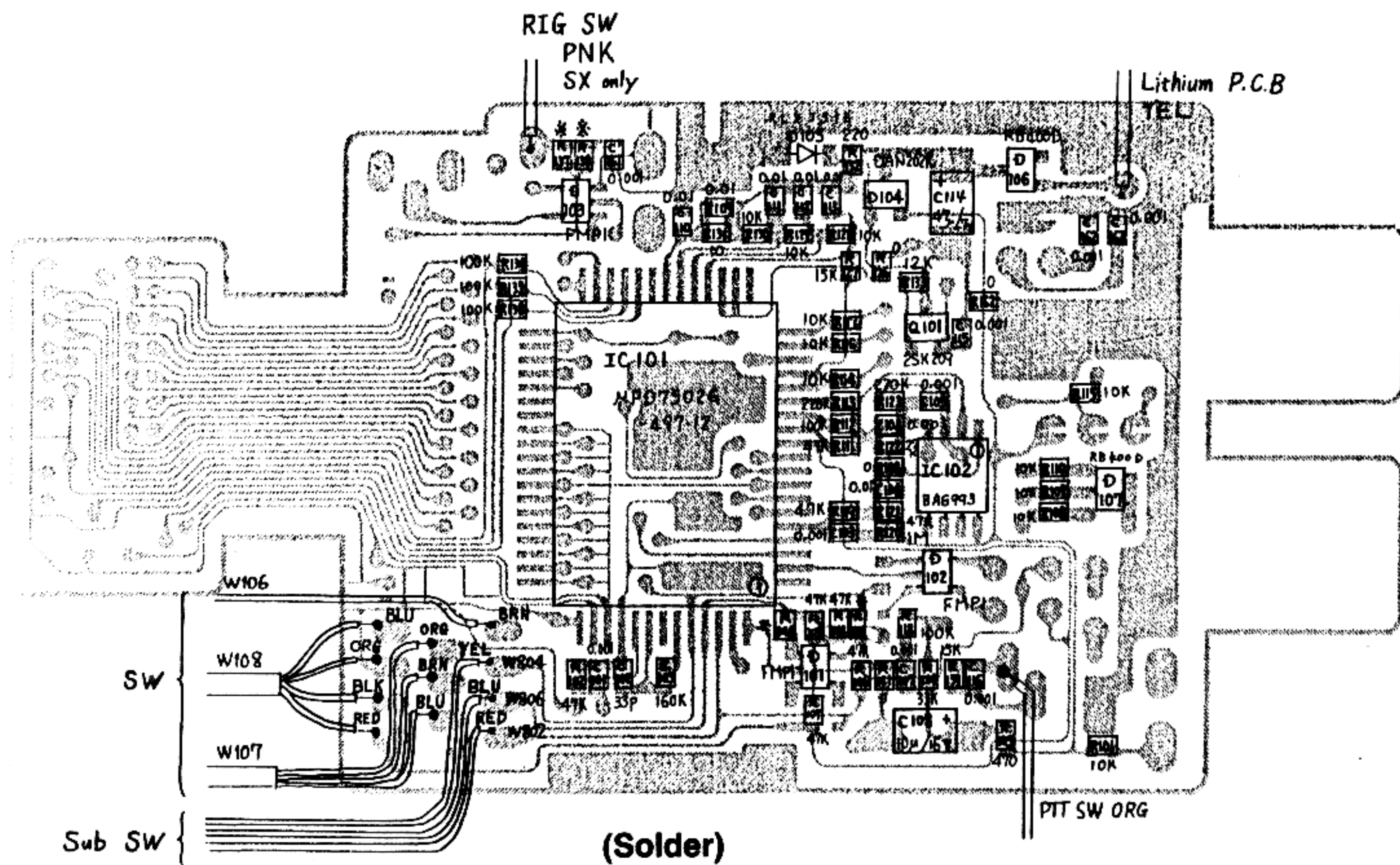
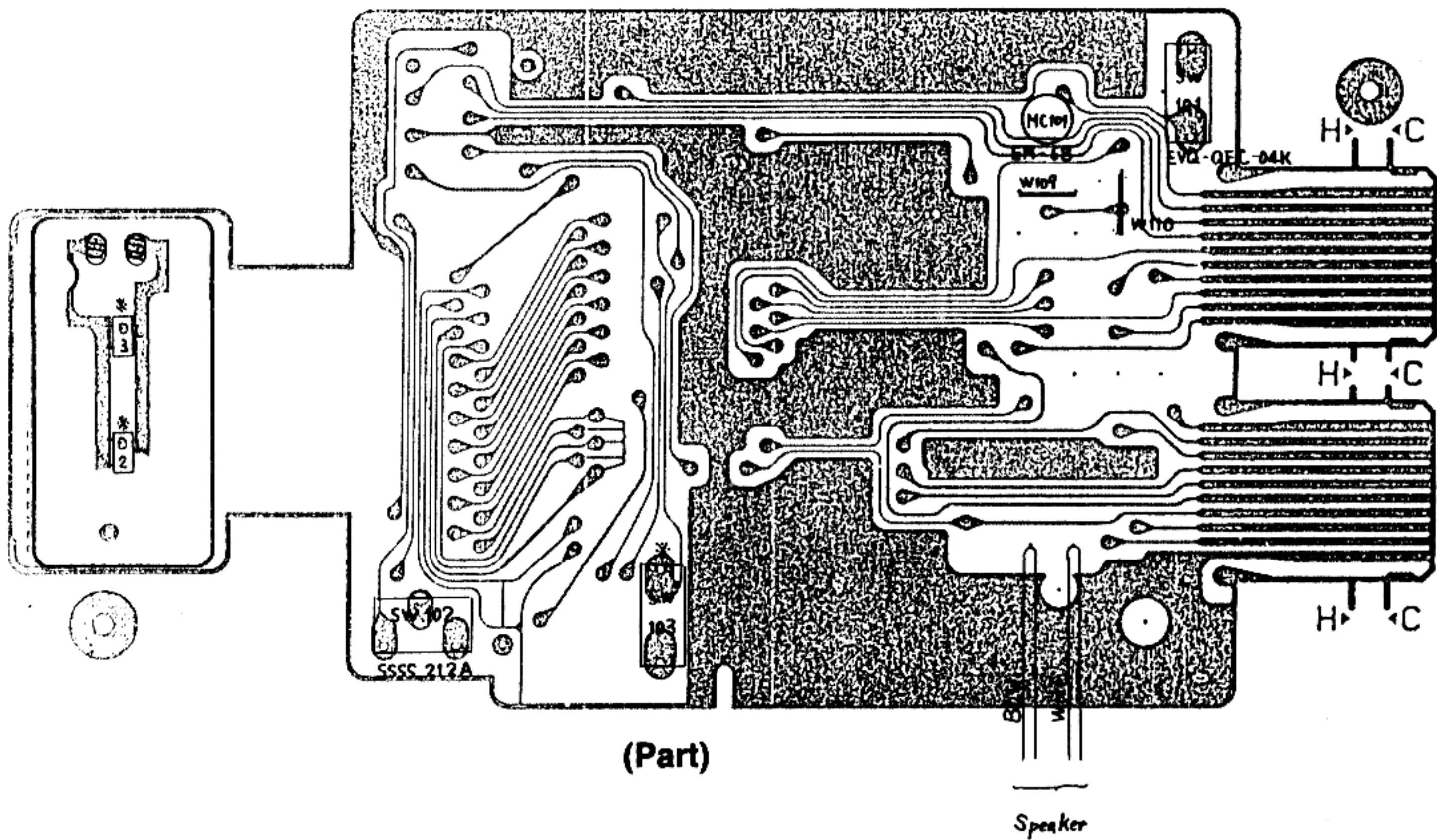


# ■ SCHEMATIC DIAGRAM OF CPU UNIT



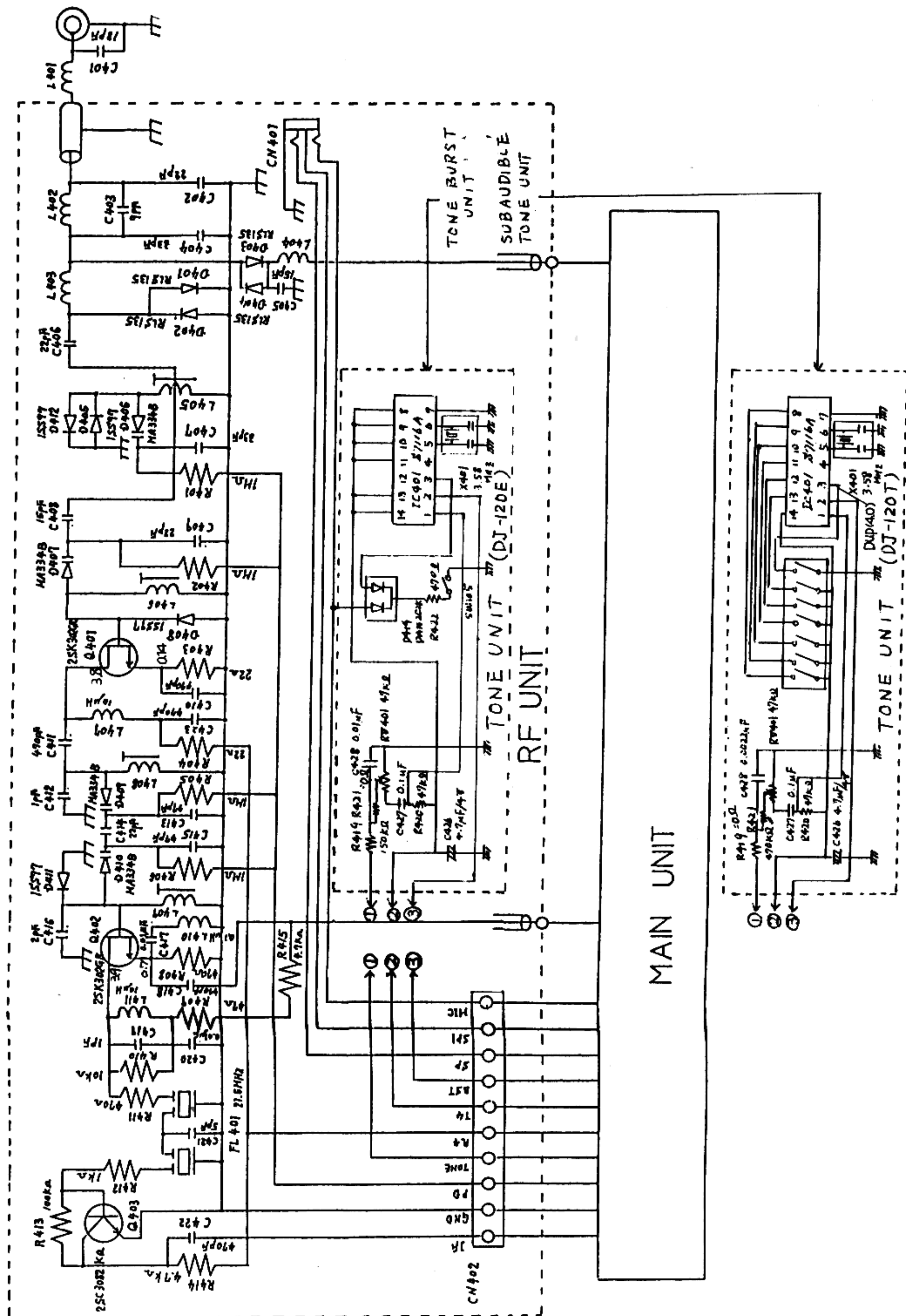
## ■ SW PC BOARDS







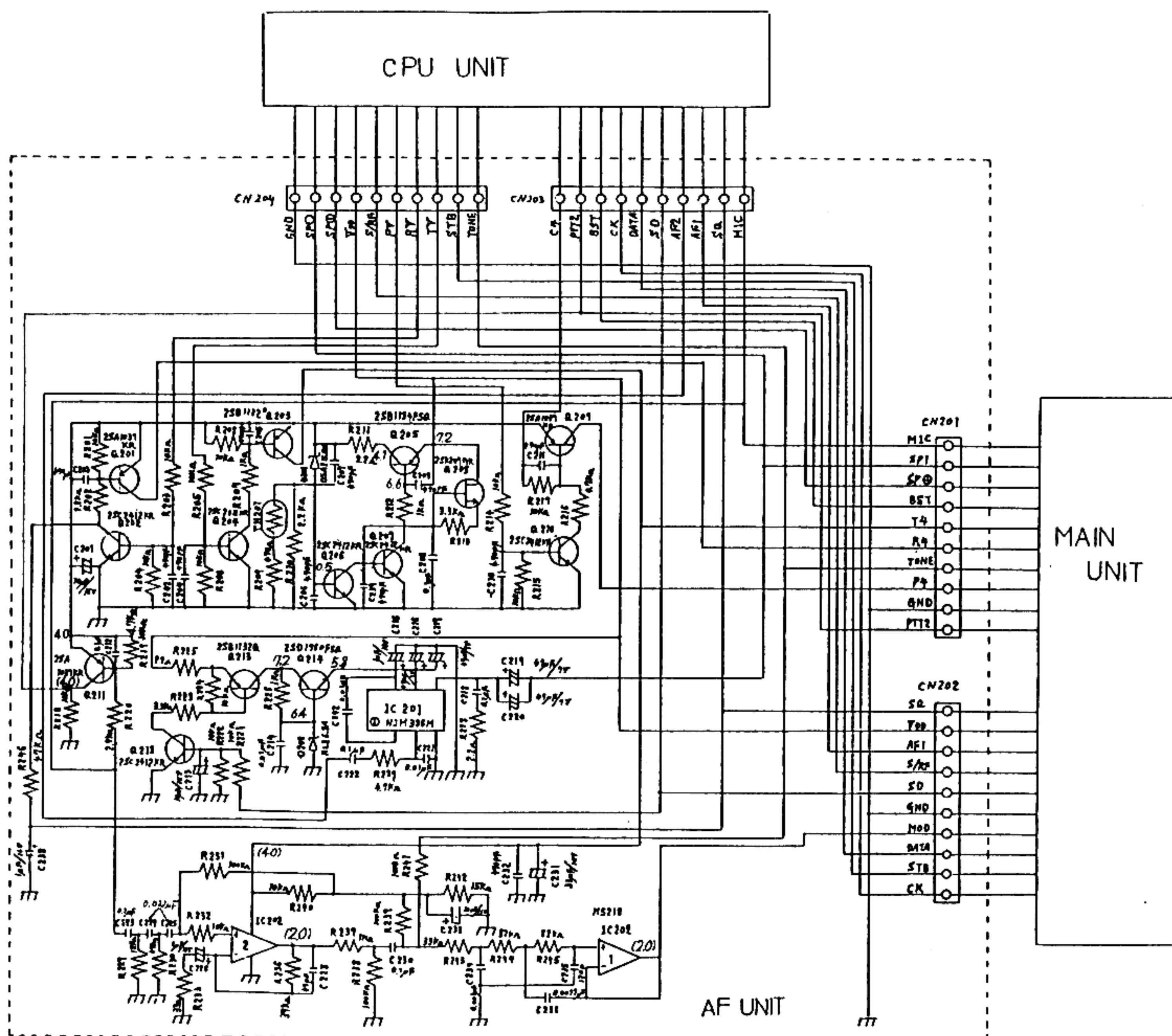
# ■ SCHEMATIC DIAGRAM OF RF UNIT

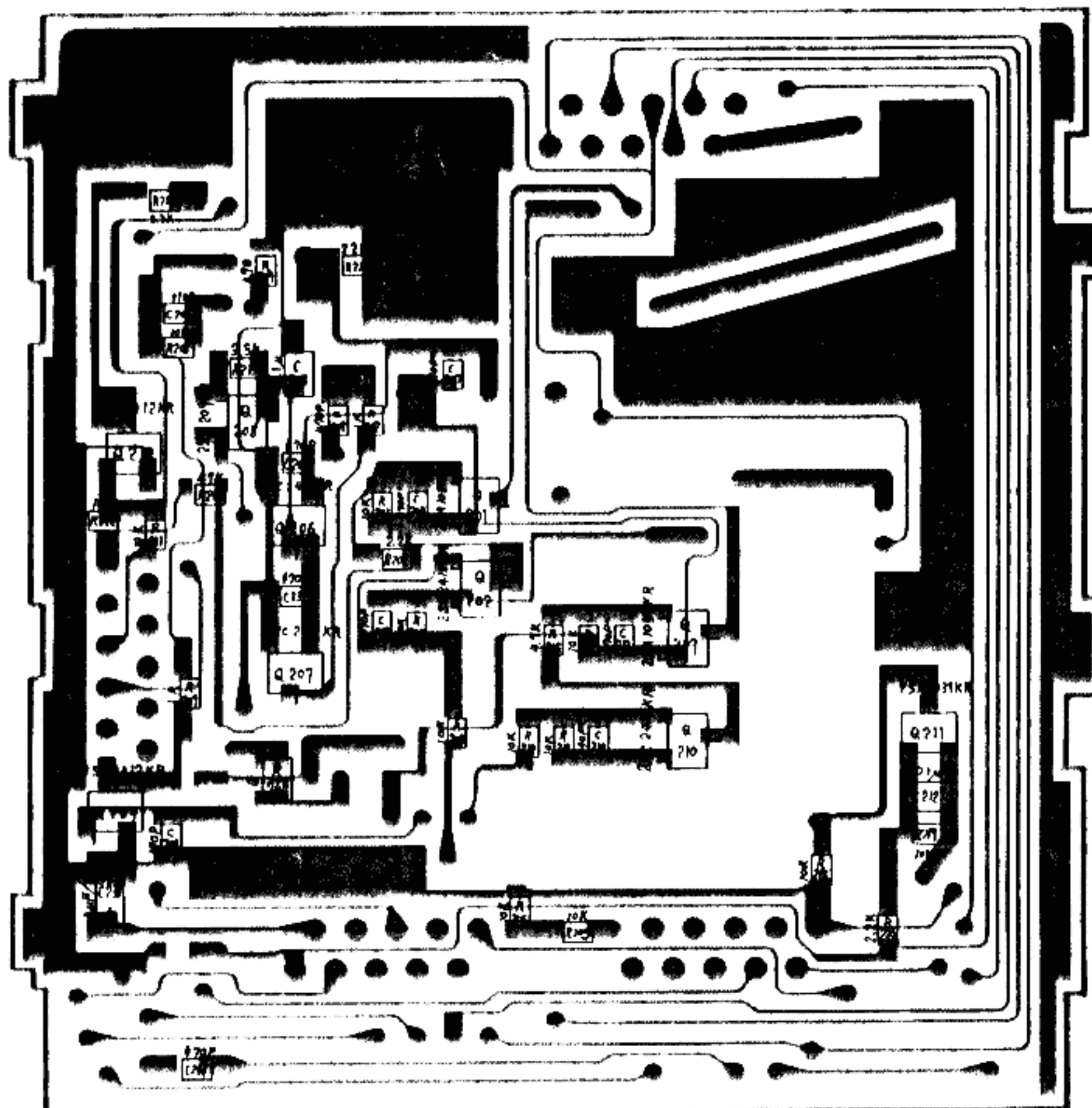
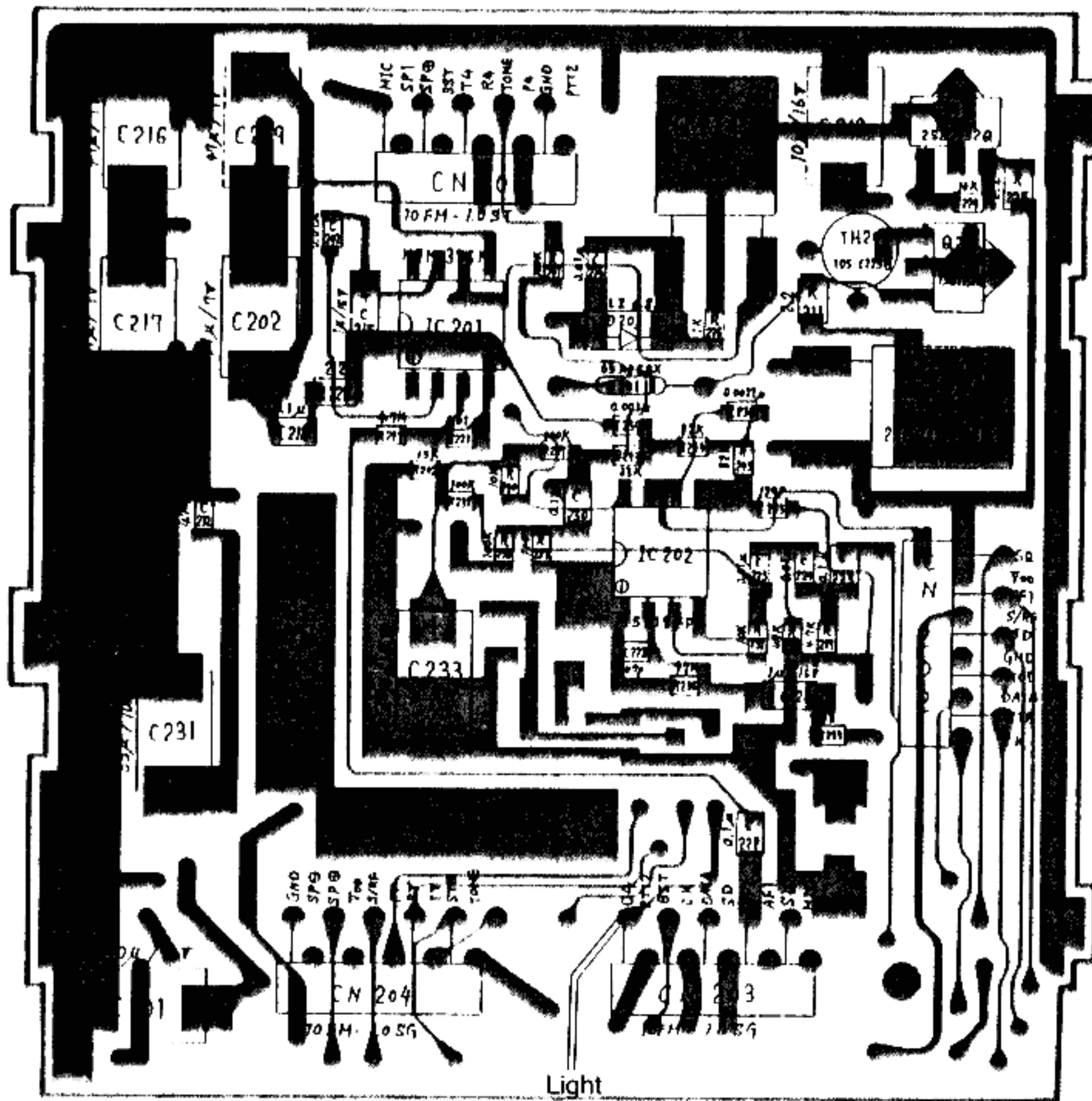




CPU P.C.B.

### ■ SCHEMATIC DIAGRAM OF AF UNIT





(Solder)



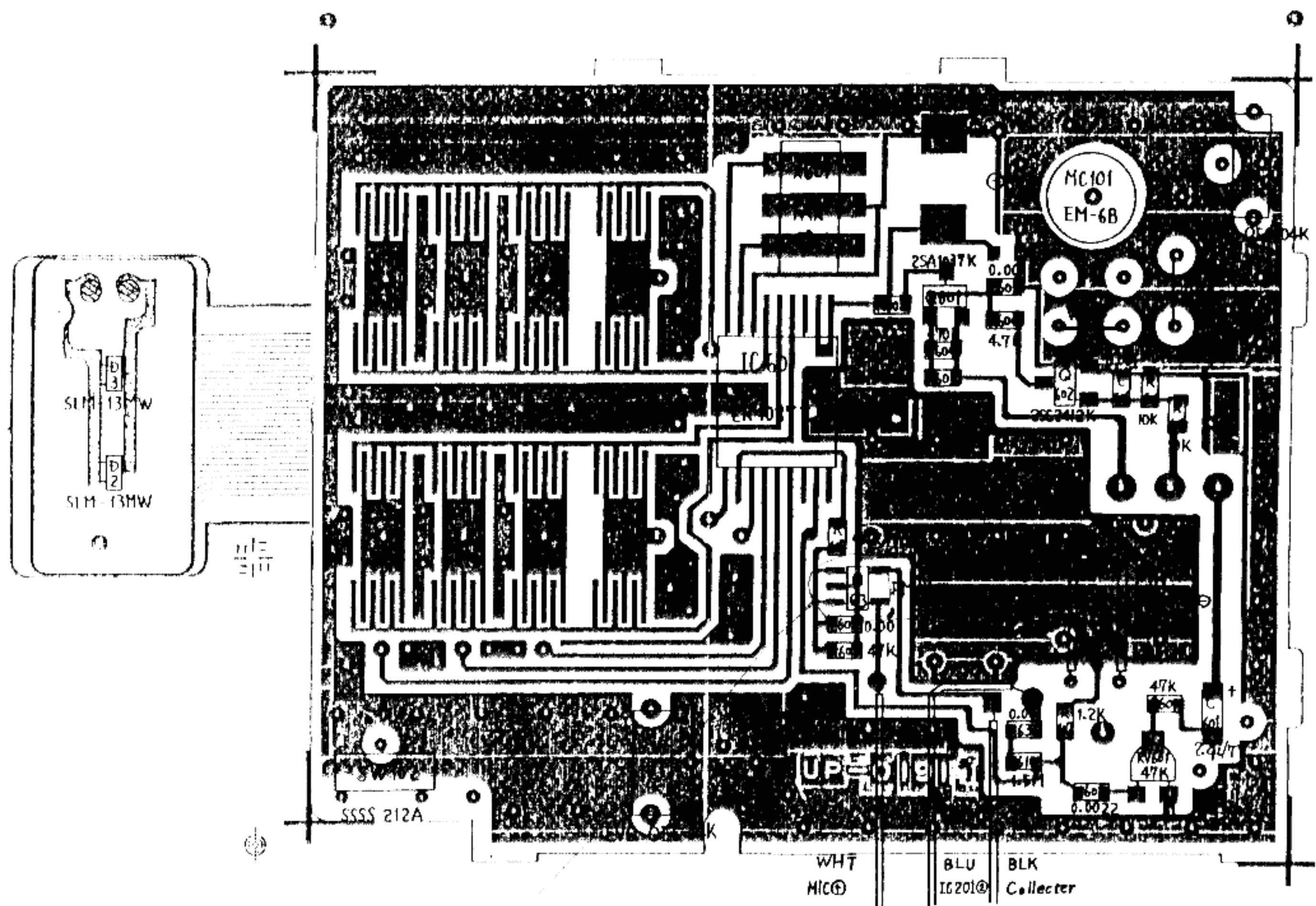
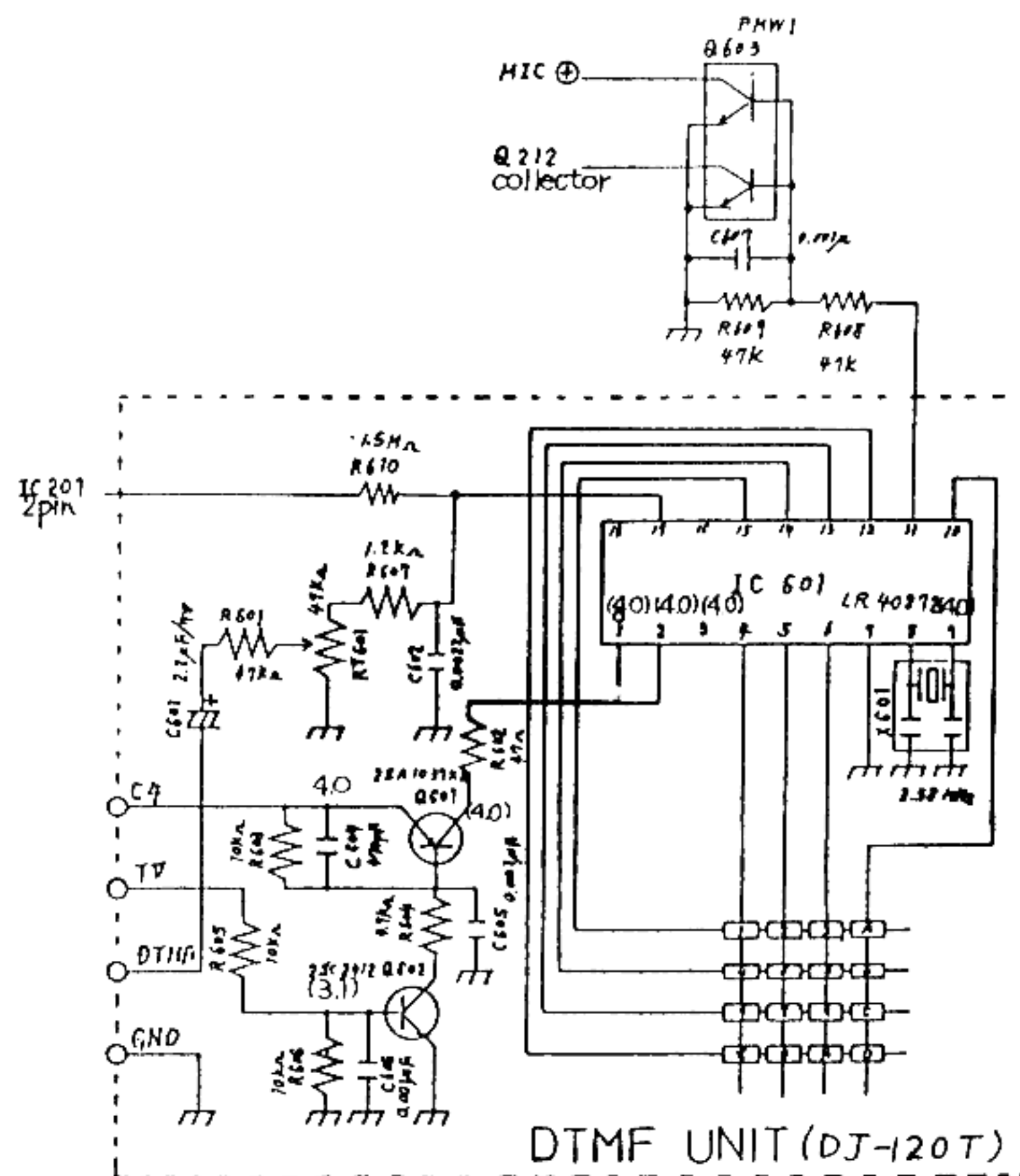
### ■ SCHEMATIC DIAGRAM OF VCO UNIT



## ■ VCO PC BOARDS



### ■ SCHEMATIC DIAGRAM OF DTMF UNIT



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